

## SEQUENCE LISTING

### SEQUENCE LISTING

- (1) GENERAL INFORMATION:
  - (iii) NUMBER OF SEQUENCES: 23
- (2) INFORMATION FOR SEQ ID NO:1:
  - (i) SEQUENCE CHARACTERISTICS:
    - (A) LENGTH: bases
    - (B) TYPE: nucleic acid
    - (C) STRANDEDNESS: single
    - (D) TOPOLOGY: linear
  - (ii) MOLECULE TYPE: Synthetic DNA
  - (ix) FEATURE:
    - (A) NAME/KEY: *Taq* Pol I for
    - (B) LOCATION:
    - (D) OTHER INFORMATION: Used to amplify full-length *Taq* Pol I coding sequence.
  - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1:

*Taq* Pol I forward

5'-gc gaattc atgaggggga tgctgcccct ctttgagccc-3'

- (2) INFORMATION FOR SEQ ID NO:2:
  - (i) SEQUENCE CHARACTERISTICS:
    - (A) LENGTH: bases
    - (B) TYPE: nucleic acid
    - (C) STRANDEDNESS: single
    - (D) TOPOLOGY: linear
  - (ii) MOLECULE TYPE: Synthetic DNA
  - (ix) FEATURE:
    - (A) NAME/KEY: *Taq* Pol I rev
    - (B) LOCATION:
    - (D) OTHER INFORMATION: Used to amplify full-length *Taq* Pol I coding sequence.
  - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:2:

*Taq* Pol I reverse

5'-gc gaattc accctccttgg cggagcgc cagtcctccc-3'

- (2) INFORMATION FOR SEQ ID NO:3:
  - (i) SEQUENCE CHARACTERISTICS:
    - (A) LENGTH: bases
    - (B) TYPE: nucleic acid
    - (C) STRANDEDNESS: single
    - (D) TOPOLOGY: linear
  - (ii) MOLECULE TYPE: Synthetic DNA
  - (ix) FEATURE:
    - (A) NAME/KEY: *Taq* Pol I\_A293\_trunk
    - (B) LOCATION:
    - (D) OTHER INFORMATION: used to amplify truncated form of *Taq* DNA pol I coding sequence
  - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:3:

Taq Pol I\_A293\_trunk

5'-aatccatggggccctggaggaggc cccctggcccccgc-3'

(2) INFORMATION FOR SEQ ID NO:4:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: bases
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Synthetic DNA

(ix) FEATURE:

- (A) NAME/KEY: Taq Pol I\_Alta643Cys\_fwd
- (B) LOCATION:
- (D) OTHER INFORMATION: used to introduce cys mutation into Taq DNA pol I coding sequence.

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:4:

Alanine 643 to Cysteine Replacement

Taq Pol I\_Alta643Cys\_fwd

5'-C CAC ACG GAG ACC tgc AGC TGG ATG TTC GGC G-3'

(2) INFORMATION FOR SEQ ID NO:5:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: bases
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Synthetic DNA

(ix) FEATURE:

- (A) NAME/KEY: Taq Pol I\_Alta643Cys\_rev
- (B) LOCATION:
- (D) OTHER INFORMATION: used to introduce cys mutation into Taq DNA pol I coding sequence.

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:5:

Taq Pol I\_Alta643Cys\_rev

5'-C GCC GAA CAT CCA CGA Gca GGT CTC CGT GTG G-3'

(2) INFORMATION FOR SEQ ID NO:6:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: bases
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Synthetic DNA

(ix) FEATURE:

- (A) NAME/KEY: Taq Pol I\_Phe647Cys\_fwd
- (B) LOCATION:
- (D) OTHER INFORMATION: used to introduce cys mutation into Taq DNA pol I coding sequence.

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:6:

Phenylalanine 647 to Cysteine Replacement

Taq Pol I\_Phe647Cys\_fwd

5'-CC GCC AGC TGG ATG TgC GGC GTC CCC CGG GAG GCC-3'

(2) INFORMATION FOR SEQ ID NO:7:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1119 bases

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Synthetic DNA

(ix) FEATURE:

(A) NAME/KEY: Taq Pol I\_Phe647Cys\_rev

(B) LOCATION:

(D) OTHER INFORMATION: pro used to introduce cys mutation into Taq DNA pol I coding sequence.

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:7:

Taq Pol I\_Phe647Cys\_rev

5'-GGC CTC CCG GGG GAC GCC GcA CAT CCA CGT GGC GG-3'

(2) INFORMATION FOR SEQ ID NO:8:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: bases

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Synthetic DNA

(ix) FEATURE:

(A) NAME/KEY: Taq Pol I\_Val649Cys\_fwd

(B) LOCATION:

(D) OTHER INFORMATION: used to introduce cys mutation into Taq DNA pol I coding sequence.

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:8:

Valine 649 to Cysteine Replacement

Taq Pol I\_Val649Cys\_fwd

5'-GCC AGC TGG ATG TTC GGC tgC CCC CGG GAG GCC GTG G-3'

(2) INFORMATION FOR SEQ ID NO:9:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: bases

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Synthetic DNA

(ix) FEATURE:

(A) NAME/KEY: Taq Pol I\_Val649Cys\_rev

(B) LOCATION:

- (D) OTHER INFORMATION: used to introduce cys  
mutation into *Taq* DNA pol I coding sequence.
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:9:

*Taq* Pol I\_Val649Cys\_rev

5'-C CAC GGC CTC CCG GGG Gca GCC GAA CAT CCA GCT GGC-3'

(2) INFORMATION FOR SEQ ID NO:10:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: bases  
(B) TYPE: nucleic acid  
(C) STRANDEDNESS: single  
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Synthetic DNA

(ix) FEATURE:

- (A) NAME/KEY: *Taq* Pol I\_Glu652Cys\_fwd  
(B) LOCATION:  
(D) OTHER INFORMATION: used to introduce cys  
mutation into *Taq* DNA pol I coding sequence.

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:10:

Glutamic Acid 652 to Cysteine Replacement

*Taq* Pol I\_Glu652Cys\_fwd

5'-GGC GTC CCC CGG tgc GCC GTG GAC CCC CTG ATG CGC-3'

(2) INFORMATION FOR SEQ ID NO:11:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: bases  
(B) TYPE: nucleic acid  
(C) STRANDEDNESS: single  
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Synthetic DNA

(ix) FEATURE:

- (A) NAME/KEY: *Taq* PolI\_Glu652Cys\_rev  
(B) LOCATION:  
(D) OTHER INFORMATION: used to introduce cys  
mutation into *Taq* DNA pol I coding sequence.

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:11:

*Taq* PolI\_Glu652Cys\_rev

5'-GCG CAT CAG GGG GTC CAC GGC gca CCG GGG GAC GCC-3'

(2) INFORMATION FOR SEQ ID NO:12:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: bases  
(B) TYPE: nucleic acid  
(C) STRANDEDNESS: single  
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Synthetic DNA

(ix) FEATURE:

- (A) NAME/KEY: *Taq* Pol I\_Ala653Cys\_fwd

- (B) LOCATION:  
(D) OTHER INFORMATION: used to introduce cys  
mutation into Taq DNA pol I coding sequence.  
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:12:

Alanine 653 to Cysteine Replacement

Taq Pol I\_Ala653Cys\_fwd

5'-GGC GTC CCC CGG GAG tgc GTG GAC CCC CTG ATG CGC-3'

- (2) INFORMATION FOR SEQ ID NO:13:  
(i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: bases  
(B) TYPE: nucleic acid  
(C) STRANDEDNESS: single  
(D) TOPOLOGY: linear  
(ii) MOLECULE TYPE: Synthetic DNA  
(ix) FEATURE:  
(A) NAME/KEY: Taq Pol I\_Ala653Cys\_rev  
(B) LOCATION:  
(D) OTHER INFORMATION: used to introduce cys  
mutation into Taq DNA pol I coding sequence.  
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:13:

Taq Pol I\_Ala653Cys\_rev

5'-GCG CAT CAG GGG GTC CAC Gca CTC CCG GGG GAC GCC-3'

- (2) INFORMATION FOR SEQ ID NO:14:  
(i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: bases  
(B) TYPE: nucleic acid  
(C) STRANDEDNESS: single  
(D) TOPOLOGY: linear  
(ii) MOLECULE TYPE: Synthetic DNA  
(ix) FEATURE:  
(A) NAME/KEY: Taq Pol I\_Val654Cys\_fwd  
(B) LOCATION:  
(D) OTHER INFORMATION: used to introduce cys  
mutation into Taq DNA pol I coding sequence.  
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:14:

Valine 654 to Cysteine Replacement

Taq Pol I\_Val654Cys\_fwd

5'-GTC CCC CGG GAG GCC tgt GAC CCC CTG ATG CGC-3'

- (2) INFORMATION FOR SEQ ID NO:15:  
(i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: bases  
(B) TYPE: nucleic acid  
(C) STRANDEDNESS: single  
(D) TOPOLOGY: linear  
(ii) MOLECULE TYPE: Synthetic DNA

- (ix) FEATURE:  
    (A) NAME/KEY: *Taq PolI\_Val654Cys\_rev*  
    (B) LOCATION:  
    (D) OTHER INFORMATION: used to introduce cys  
        mutation into *Taq DNA pol I* coding sequence.  
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:15:

*Taq PolI\_Val654Cys\_rev*  
5'-GCG CAT CAG GGG GTC aca GGC CTC CCG GGG GAC-3'

(2) INFORMATION FOR SEQ ID NO:16:

- (i) SEQUENCE CHARACTERISTICS:  
    (A) LENGTH: bases  
    (B) TYPE: nucleic acid  
    (C) STRANDEDNESS: single  
    (D) TOPOLOGY: linear  
(ii) MOLECULE TYPE: Synthetic DNA  
(ix) FEATURE:  
    (A) NAME/KEY: *Taq Pol I\_D655C\_fwd*  
    (B) LOCATION:  
    (D) OTHER INFORMATION: used to introduce cys  
        mutation into *Taq DNA pol I* coding sequence.  
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:16:

Aspartic Acid 655 to Cysteine Replacement  
*Taq Pol I\_D655C\_fwd*  
5'-CCC CGG GAG GCC GTG tgC CCC CTG ATG CGC CGG-3'

(2) INFORMATION FOR SEQ ID NO:17:

- (i) SEQUENCE CHARACTERISTICS:  
    (A) LENGTH: bases  
    (B) TYPE: nucleic acid  
    (C) STRANDEDNESS: single  
    (D) TOPOLOGY: linear  
(ii) MOLECULE TYPE: Synthetic DNA  
(ix) FEATURE:  
    (A) NAME/KEY: *Taq Pol I\_D655C\_rev*  
    (B) LOCATION:  
    (D) OTHER INFORMATION: used to introduce cys  
        mutation into *Taq DNA pol I* coding sequence.  
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:17:

*Taq Pol I\_D655C\_rev*  
5'-CCG GCG CAT CAG GGG Gca CAC GGC CTC CCG GGG-3'

(2) INFORMATION FOR SEQ ID NO:18:

- (i) SEQUENCE CHARACTERISTICS:  
    (A) LENGTH: bases  
    (B) TYPE: nucleic acid  
    (C) STRANDEDNESS: single  
    (D) TOPOLOGY: linear

- (ii) MOLECULE TYPE: Synthetic DNA
- (ix) FEATURE:
  - (A) NAME/KEY: *Taq* Pol I\_Pro656Cys\_fwd
  - (B) LOCATION:
  - (D) OTHER INFORMATION: used to introduce cys mutation into *Taq* DNA pol I coding sequence.
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:18:

Proline 656 to Cysteine Replacement

*Taq* Pol I\_Pro656Cys\_fwd

5'-CGG GAG GCC GTG GAC tgc CTG ATG CGC CGG GCG-3'

- (2) INFORMATION FOR SEQ ID NO:19:
  - (i) SEQUENCE CHARACTERISTICS:
    - (A) LENGTH: bases
    - (B) TYPE: nucleic acid
    - (C) STRANDEDNESS: single
    - (D) TOPOLOGY: linear
  - (ii) MOLECULE TYPE: Synthetic DNA
  - (ix) FEATURE:
    - (A) NAME/KEY: *Taq* Pol I\_Pro656Cys\_rev
    - (B) LOCATION:
    - (D) OTHER INFORMATION: used to introduce cys mutation into *Taq* DNA pol I coding sequence.
  - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:19:

*Taq* Pol I\_Pro656Cys\_rev

5'-CGC CCG GCG CAT CAG Gca GTC CAC GGC CTC CCG-3'

- (2) INFORMATION FOR SEQ ID NO:20:
  - (i) SEQUENCE CHARACTERISTICS:
    - (A) LENGTH: bases
    - (B) TYPE: nucleic acid
    - (C) STRANDEDNESS: single
    - (D) TOPOLOGY: linear
  - (ii) MOLECULE TYPE: Synthetic DNA
  - (ix) FEATURE:
    - (A) NAME/KEY: *Taq* Pol I\_Leu657Cys\_fwd
    - (B) LOCATION:
    - (D) OTHER INFORMATION: used to introduce cys mutation into *Taq* DNA pol I coding sequence.
  - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:20:

Leucine 657 to Cysteine Replacement

*Taq* Pol I\_Leu657Cys\_fwd

5'-GCC GTG GAC CCC tgc ATG CGC CGG GCG GCC-3'

- (2) INFORMATION FOR SEQ ID NO:21:
  - (i) SEQUENCE CHARACTERISTICS:
    - (A) LENGTH: bases
    - (B) TYPE: nucleic acid

- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: Synthetic DNA
- (ix) FEATURE:
  - (A) NAME/KEY: *Taq* Pol I\_Leu657Cys\_rev
  - (B) LOCATION:
  - (D) OTHER INFORMATION: used to introduce cys mutation into *Taq* DNA pol I coding sequence.
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:21:

*Taq* Pol I\_Leu657Cys\_rev

5'-GGC CGC CCG GCG CAT gca GGG GTC CAC GGC-3'

- (2) INFORMATION FOR SEQ ID NO:22:
  - (i) SEQUENCE CHARACTERISTICS:
    - (A) LENGTH: bases
    - (B) TYPE: nucleic acid
    - (C) STRANDEDNESS: single
    - (D) TOPOLOGY: linear
  - (ii) MOLECULE TYPE: Synthetic DNA
  - (ix) FEATURE:
    - (A) NAME/KEY: *Taq* Pol I\_Met658Cys\_fwd
    - (B) LOCATION:
    - (D) OTHER INFORMATION: used to introduce cys mutation into *Taq* DNA pol I coding sequence.
  - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:22:

Methionine 658 to Cysteine Replacement

*Taq* Pol I\_Met658Cys\_fwd

5'-GCC GTG GAC CCC CTG tgt CGC CGG GCG GCC-3'

- (2) INFORMATION FOR SEQ ID NO:23:
  - (i) SEQUENCE CHARACTERISTICS:
    - (A) LENGTH: bases
    - (B) TYPE: nucleic acid
    - (C) STRANDEDNESS: single
    - (D) TOPOLOGY: linear
  - (ii) MOLECULE TYPE: Synthetic DNA
  - (ix) FEATURE:
    - (A) NAME/KEY: *Taq* Pol I\_Met658Cys\_rev
    - (B) LOCATION:
    - (D) OTHER INFORMATION: used to introduce cys mutation into *Taq* DNA pol I coding sequence.
  - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:23:

*Taq* Pol I\_Met658Cys\_rev

5'-GGC CGC CCG GCG aca CAG GGG GTC CAC GGC-3'

- (2) INFORMATION FOR SEQ ID NO:24:
  - (i) SEQUENCE CHARACTERISTICS:
    - (A) LENGTH: bases



- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: Synthetic DNA
- (ix) FEATURE:
  - (A) NAME/KEY: *Taq* Pol I\_Arg659Cys\_fwd
  - (B) LOCATION:
  - (D) OTHER INFORMATION: used to introduce cys mutation into *Taq* DNA pol I coding sequence.
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:24:

Arginine 659 to Cysteine Replacement

*Taq* Pol I\_Arg659Cys\_fwd

5'-GCC GTG GAC CCC CTG ATG tGC CGG GCG GCC AAG ACC-3'

- (2) INFORMATION FOR SEQ ID NO:25:
  - (i) SEQUENCE CHARACTERISTICS:
    - (A) LENGTH: bases
    - (B) TYPE: nucleic acid
    - (C) STRANDEDNESS: single
    - (D) TOPOLOGY: linear
  - (ii) MOLECULE TYPE: Synthetic DNA
  - (ix) FEATURE:
    - (A) NAME/KEY: *Taq* Pol I\_Arg659Cys\_rev
    - (B) LOCATION:
    - (D) OTHER INFORMATION: used to introduce cys mutation into *Taq* DNA pol I coding sequence.
  - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:25:

*Taq* Pol I\_Arg659Cys\_rev

5'-GGT CTT GGC CGC CCG GCa CAT CAG GGG GTC CAC GGC-3'

- (2) INFORMATION FOR SEQ ID NO:26:
  - (i) SEQUENCE CHARACTERISTICS:
    - (A) LENGTH: bases
    - (B) TYPE: nucleic acid
    - (C) STRANDEDNESS: single
    - (D) TOPOLOGY: linear
  - (ii) MOLECULE TYPE: Synthetic DNA
  - (ix) FEATURE:
    - (A) NAME/KEY: *Taq* Pol I\_Arg660Cys\_fwd
    - (B) LOCATION:
    - (D) OTHER INFORMATION: used to introduce cys mutation into *Taq* DNA pol I coding sequence.
  - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:26:

Arginine 660 to Cysteine Replacement

*Taq* Pol I\_Arg660Cys\_fwd

5'-GAC CCC CTG ATG CGC tGc GCG GCC AAG ACC ATC-3'

- (2) INFORMATION FOR SEQ ID NO:27:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: bases
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: Synthetic DNA
- (ix) FEATURE:
  - (A) NAME/KEY: *Taq* Pol I\_Arg660Cys\_rev
  - (B) LOCATION:
  - (D) OTHER INFORMATION: used to introduce cys mutation into *Taq* DNA pol I coding sequence.
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:27:

*Taq* Pol I\_Arg660Cys\_rev

5'-GAT GGT CTT GGC CGC gCa GCG CAT CAG GGG GTC-3'

(2) INFORMATION FOR SEQ ID NO:28:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: bases
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: Synthetic DNA
- (ix) FEATURE:
  - (A) NAME/KEY: *Taq* Pol I\_Ala661Cys\_fwd
  - (B) LOCATION:
  - (D) OTHER INFORMATION: used to introduce cys mutation into *Taq* DNA pol I coding sequence.
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:28:

Alanine 661 to Cysteine Replacement

*Taq* Pol I\_Ala661Cys\_fwd

5'-CCC CTG ATG CGC CGG tgc GCC AAG ACC ATC AAC-3'

(2) INFORMATION FOR SEQ ID NO:29:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: bases
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: Synthetic DNA
- (ix) FEATURE:
  - (A) NAME/KEY: *Taq* Pol I\_Ala661Cys\_rev
  - (B) LOCATION:
  - (D) OTHER INFORMATION: used to introduce cys mutation into *Taq* DNA pol I coding sequence.
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:29:

*Taq* Pol I\_Ala661Cys\_rev

5'-GTT GAT GGT CTT GGC gca CCG GCG CAT CAG GGG-3'

(2) INFORMATION FOR SEQ ID NO:30:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH:
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY:

(ii) MOLECULE TYPE: polypeptide region of *Taq* DNA polymerase

(ix) FEATURE:

- (A) NAME/KEY:
- (B) LOCATION:
- (D) OTHER INFORMATION: polypeptide region of *Taq* DNA polymerase containing mutation for tag attachment.

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:30:

Cys Ser Trp Met Phe Gly Val Pro Arg Glu Ala Val Asp Pro Leu Met  
643 644 645 646 647 648 649 650 651 652 653 654 655 656 657 658  
Arg Arg Ala  
659 660 661

(2) INFORMATION FOR SEQ ID NO:31:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH:
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY:

(ii) MOLECULE TYPE: polypeptide region of *Taq* DNA polymerase

(ix) FEATURE:

- (A) NAME/KEY:
- (B) LOCATION:
- (D) OTHER INFORMATION: polypeptide region of *Taq* DNA polymerase containing mutation for tag attachment.

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:31:

Ala Ser Trp Met Cys Gly Val Pro Arg Glu Ala Val Asp Pro Leu Met  
643 644 645 646 647 648 649 650 651 652 653 654 655 656 657 658  
Arg Arg Ala  
659 660 661

(2) INFORMATION FOR SEQ ID NO:32:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH:
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY:

(ii) MOLECULE TYPE: polypeptide region of *Taq* DNA polymerase

(ix) FEATURE:

(A) NAME/KEY:  
(B) LOCATION:  
(D) OTHER INFORMATION: polypeptide region of *Taq* DNA polymerase containing mutation for tag attachment.

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:32:

Ala Ser Trp Met Phe Gly Cys Pro Arg Glu Ala Val Asp Pro Leu Met  
643 644 645 646 647 648 649 650 651 652 653 654 655 656 657 658  
Arg Arg Ala  
659 660 661

(2) INFORMATION FOR SEQ ID NO:33:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH:  
(B) TYPE: amino acid  
(C) STRANDEDNESS: single  
(D) TOPOLOGY:

(ii) MOLECULE TYPE: polypeptide region of *Taq* DNA polymerase

(ix) FEATURE:

(A) NAME/KEY:  
(B) LOCATION:  
(D) OTHER INFORMATION: polypeptide region of *Taq* DNA polymerase containing mutation for tag attachment.

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:33:

Ala Ser Trp Met Phe Gly Val Pro Arg Cys Ala Val Asp Pro Leu Met  
643 644 645 646 647 648 649 650 651 652 653 654 655 656 657 658  
Arg Arg Ala  
659 660 661

(2) INFORMATION FOR SEQ ID NO:34:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH:  
(B) TYPE: amino acid  
(C) STRANDEDNESS: single  
(D) TOPOLOGY:

(ii) MOLECULE TYPE: polypeptide region of *Taq* DNA polymerase

(ix) FEATURE:

(A) NAME/KEY:  
(B) LOCATION:  
(D) OTHER INFORMATION: polypeptide region of *Taq* DNA polymerase containing mutation for tag attachment.

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:34:

Ala Ser Trp Met Phe Gly Val Pro Arg Glu Cys Val Asp Pro Leu Met  
643 644 645 646 647 648 649 650 651 652 653 654 655 656 657 658

Arg Arg Ala  
659 660 661

(2) INFORMATION FOR SEQ ID NO:35:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH:
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY:

(ii) MOLECULE TYPE: polypeptide region of *Taq* DNA polymerase

(ix) FEATURE:

- (A) NAME/KEY:
- (B) LOCATION:
- (D) OTHER INFORMATION: polypeptide region of *Taq* DNA polymerase containing mutation for tag attachment.

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:35:

Ala Ser Trp Met Phe Gly Val Pro Arg Glu Ala Cys Asp Pro Leu Met  
643 644 645 646 647 648 649 650 651 652 653 654 655 656 657 658  
Arg Arg Ala  
659 660 661

(2) INFORMATION FOR SEQ ID NO:36:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH:
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY:

(ii) MOLECULE TYPE: polypeptide region of *Taq* DNA polymerase

(ix) FEATURE:

- (A) NAME/KEY:
- (B) LOCATION:
- (D) OTHER INFORMATION: polypeptide region of *Taq* DNA polymerase containing mutation for tag attachment.

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:36:

Ala Ser Trp Met Phe Gly Val Pro Arg Glu Ala Val Cys Pro Leu Met  
643 644 645 646 647 648 649 650 651 652 653 654 655 656 657 658  
Arg Arg Ala  
659 660 661

(2) INFORMATION FOR SEQ ID NO:37:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH:
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY:



Ala Ser Trp Met Phe Gly Val Pro Arg Glu Ala Val Asp Pro Leu Cys  
643 644 645 646 647 648 649 650 651 652 653 654 655 656 657 658  
Arg Arg Ala  
659 660 661

(2) INFORMATION FOR SEQ ID NO:40:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH:
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY:

(ii) MOLECULE TYPE: polypeptide region of *Taq* DNA polymerase

(ix) FEATURE:

- (A) NAME/KEY:
- (B) LOCATION:
- (D) OTHER INFORMATION: polypeptide region of *Taq* DNA polymerase containing mutation for tag attachment.

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:40:

Ala Ser Trp Met Phe Gly Val Pro Arg Glu Ala Val Asp Pro Leu Met  
643 644 645 646 647 648 649 650 651 652 653 654 655 656 657 658  
Cys Arg Ala  
659 660 661

(2) INFORMATION FOR SEQ ID NO:41:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH:
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY:

(ii) MOLECULE TYPE: polypeptide region of *Taq* DNA polymerase

(ix) FEATURE:

- (A) NAME/KEY:
- (B) LOCATION:
- (D) OTHER INFORMATION: polypeptide region of *Taq* DNA polymerase containing mutation for tag attachment.

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:41:

Ala Ser Trp Met Phe Gly Val Pro Arg Glu Ala Val Asp Pro Leu Met  
643 644 645 646 647 648 649 650 651 652 653 654 655 656 657 658  
Arg Cys Ala  
659 660 661

(2) INFORMATION FOR SEQ ID NO:42:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH:

- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY:
- (ii) MOLECULE TYPE: polypeptide region of *Taq* DNA polymerase
- (ix) FEATURE:
  - (A) NAME/KEY:
  - (B) LOCATION:
  - (D) OTHER INFORMATION: polypeptide region of *Taq* DNA polymerase containing mutation for tag attachment.
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:42:

Ala Ser Trp Met Phe Gly Val Pro Arg Glu Ala Val Asp Pro Leu Met  
643 644 645 646 647 648 649 650 651 652 653 654 655 656 657 658  
Arg Arg Cys  
659 660 661

- (2) INFORMATION FOR SEQ ID NO:43:
  - (i) SEQUENCE CHARACTERISTICS:
    - (A) LENGTH:
    - (B) TYPE: amino acid
    - (C) STRANDEDNESS: single
    - (D) TOPOLOGY:
  - (ii) MOLECULE TYPE: polypeptide region of *Taq* DNA polymerase
  - (ix) FEATURE:
    - (A) NAME/KEY:
    - (B) LOCATION:
    - (D) OTHER INFORMATION: polypeptide region of *Taq* DNA polymerase containing mutation for tag attachment.
  - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:43:

Cys Thr Ser Ala Ala Val  
513 514 515 516 517 518

- (2) INFORMATION FOR SEQ ID NO:44:
  - (i) SEQUENCE CHARACTERISTICS:
    - (A) LENGTH:
    - (B) TYPE: amino acid
    - (C) STRANDEDNESS: single
    - (D) TOPOLOGY:
  - (ii) MOLECULE TYPE: polypeptide region of *Taq* DNA polymerase
  - (ix) FEATURE:
    - (A) NAME/KEY:
    - (B) LOCATION:
    - (D) OTHER INFORMATION: polypeptide region of *Taq* DNA polymerase containing mutation for tag attachment.



(xi) SEQUENCE DESCRIPTION: SEQ ID NO:44:

Ser Cys Ser Ala Ala Val  
513 514 515 516 517 518

(2) INFORMATION FOR SEQ ID NO:45:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH:
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY:

(ii) MOLECULE TYPE: polypeptide region of *Taq* DNA polymerase

(ix) FEATURE:

- (A) NAME/KEY:
- (B) LOCATION:
- (D) OTHER INFORMATION: polypeptide region of *Taq* DNA polymerase containing mutation for tag attachment.

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:45:

Ser Thr Cys Ala Ala Val  
513 514 515 516 517 518

(2) INFORMATION FOR SEQ ID NO:46:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH:
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY:

(ii) MOLECULE TYPE: polypeptide region of *Taq* DNA polymerase

(ix) FEATURE:

- (A) NAME/KEY:
- (B) LOCATION:
- (D) OTHER INFORMATION: polypeptide region of *Taq* DNA polymerase containing mutation for tag attachment.

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:46:

Ser Thr Ser Cys Ala Val  
513 514 515 516 517 518

(2) INFORMATION FOR SEQ ID NO:47:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH:
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY:

(ii) MOLECULE TYPE: polypeptide region of *Taq* DNA polymerase

